BULLETIN
OF
The American Gastroscopic Society

EDITOR—ROY LYMAN SEXTON, M.D., 1801 Eye Street, N. W., Washington 6, D. C.
ASST. EDITORS—EDDY PALMER, M.D., Walter Reed Hospital, Washington 12, D. C.
DONALD MARION, M.D., 1040 Dupont Building, Miami, Florida
JOHN TILDEN HOWARD, M.D., 12 East Eager Street, Baltimore, Md.

VOL. III OCTOBER, 1954 NO. 10

LIBRARY
INDIANA UNIVERSITY
Medical Center
Indianapolis

## History of the Making of the Flexible Gastroscope

RUDOLF SCHINDLER, M.D.

(Banquet Speech—American Gastroscopic Society—San Francisco, California—June 20, 1954)

Mr. President,

Members of the Gastroscopic Society,

Guests:

I said this afternoon that I was so happy to be able to speak again before my beloved gastroscopic society. First of all Dr. Pollard's remarks have intimidated me a little. Secondly, I am not a light and easy speaker. I must be serious. Any attempt to be light and facetious, such as my friend, John Tilden Howard was in his delightful letter to us, or as Marie Ortmayer was right now—any such attempt becomes a failure. I must apolgize right here for my matter-of-factness and seriousness. Then, in writing papers, you know, it is a big rule: one shall not use the word "I". I have thought the problem over and over, how to tell the story of the development of the flexible gastroscope without using the word "I"; it does not work. However, you should understand that at no time in the development of the gastroscope did I plan to do something special. It was duty and work from day to day—fed by a great amount of curiosity and, probably, by a certain stubbornness.

Just imagine, gentlemen, the conditions after World War I in Germany. Starvation. Defeat. Utter exhaustion. Pessimism. What was to do now? Relief could be found only by fulfilling of the daily duty.

When I came back from the first World War (I had been with the German Army in France for 4 years) I came back to my Hospital Munich Schwabing. Some of you know it. It is now in American hands. I had there a ward of 60 beds. I had it all alone. I had to do everything myself, I had no intern, no laboratory technician, I made all my urinalyses myself, I did all my blood counts myself, I did all my blood chemistry myself, I did all my goldsol reactions myself and I made up my goldsol solution myself. And then I had an additional duty: I had to do all the ureter catheterisms of the hospital. Curiously enough there was at that time nobody besides me who could do a ureter catheterism. I had learned it while I was studying in Berlin with Casper. As a boy I had been considered always to be extremely and extraordinarily awkward. And all what came later certainly was just over-compensation. Anyway I was the one to do the ureter catheterisms.

By the way, an event comes into my mind which at that time almost would have finished my career at one single moment. I remember the situation very well. The patient was lying on the chair and the nurse, a catholic nun, gave me the syringe with the indigo carmin solution. We used then an indigo carmin solution for testing the function of the kidneys, and it had to be injected, and I wanted to inject it, and in the last moment before sticking the needle in I looked at the syringe, and I thought that the solution looked very light blue instead of dark blue. I asked the nurse and she admitted that really and truly she had taken a solution of mercury bichloride instead of the indigo carmin. A few seconds later, and my career would have been finished.

Then there were two events which led me toward gastroscopy. Those of you who know the hospital Schwabing will remember its enormous long hallways. I used to bicycle through them. But then, one day, I was walking through them, and I found in a cupboard in the surgical department a box which contained the Bruening esophagoscope, completely unused, new. Nobody had dared to use it. Then esophagoscopy was considered to be an extremely difficult and dangerous procedure. But this unused instrument intrigued me very much. I took the box and carried it to the library and there I drew Bruening's book and studied this instrument and the book for the following three months every day. After I had become familiar with the instrument and believed to know every screw I decided to try it on patients. I had at that time three patients with a carcinoma of the esophagus on my ward. I tried to introduce the instrument and it was easy. It was extremely easy. The esophagoscope entered readily and I could see the tumors and I could take biopsies, and there was nothing to it. Now then, I remembered pictures I had seen, from the inside of the stomach which had been published by Elsner many years before, in fact in 1912; and I thought if it was so easy to look into the esophagus, perhaps one might be able to look into the stomach equally well.

Then there was a second problem. In the Veterans' Hospital in Munich there were many Veterans of the War who suffered from stomach distress, and their doctors—not they, but their doctors—were convinced that they were not goldbricks, that they were not psychoneurotics, that they had some organic disease—only they could not find it. That was important because only veterans with service connected organic disease could get a pension; psychoneurotics could not, according to the German law. I then thought: if we only could look

Oct 26 54

into their stomachs we may perhaps find out the source of their distress.

Then one day I was downtown in Munich and was in the shop of Reiniger, Gebbert & Schall, and there I saw lying around an old Elsner gastroscope. I asked the salesman could I have this instrument? He said, oh yes, just take it; this is lying around now since 1912, for 8 years; nobody cares for it, nobody ever has used it, just take it and do with it what you will. So I took it home, and I anesthesized my patient and introduced the instrument and it slid into the stomach with the greatest of ease, and you cannot imagine the thrill I had: I saw clearly the gastric mucosa, I saw the moving and closing pylorus. It was an enormous impression. When I examined my fifth patient I could see a colorful type 2 carcinoma.

I probably was then a better orator than I am now. I gave a talk about this instrument and its use and what I had seen before our study club. My Chief, Professor Neubauer, immediately decided to buy this instrument; and now I started to gastroscope every patient with some kind of stomach distress. I made a great number of gastroscopies then. But I discovered soon that the Elsner gastroscope was not so wonderful as I had thought in the beginning. I encountered serious difficulties. The optical system became so easily smeared, and one had constantly to remove the optical system to clean it, to introduce it again. It was sometimes no pleasure at all. Now, I had never learned to make drawings or blueprints but I took a piece of paper and drew with my pencil a gastroscope as I thought it should be. Then I made a longitudinal section, and I made a cross section. And these drawings I sent with a nice letter to Reiniger, Gebbert & Schall to Erlangen. I did not expect a reply and I did not get any reply. But three months later a box arrived and in this box, when I opened it, there was the gastroscope as I had designed it on my piece of paper. Now, that I tried and it was much better than the Elsner instrument. In fact it was very satisfactory. And I did then all my gastroscopies with this instrument. At that time I discovered the frequency of gastritis. I presented this instrument and the results before the Medical Society in Munich. I made my first publication. At that time Dr. Rodgers of Chicago was in Munich and he saw the gastroscopies and introduced me to Mrs. Charlotte Morse from Chicago and she decided right away to give me money for my first publication. With this money the first colored plate was printed and it was the first American money I received.

At the same time there was another event which was very decisive for the development of gastroscopy. Namely, I got married. Most of you probably will know what role my wife has played from the very first beginning of gastroscopy to the present date. Without her gastroscopy would not have developed as it has developed. By the way, do not believe that I was so engrossed in gastroscopy that I did not do anything else. I had my hobbies as I have them today. I remember very well that the evening before my wedding I conducted a concert performance of Mozart's "Marriage of Figaro", with my own orchestra and with my own singers and it was a great success.

But then came the first turning point of gastroscopy. I had my first mishap: a rupture of the thoracic esophagus, and the patient died. Now I have known that many people before me had such accidents; and then each of them had given up gastroscopy. I did not give up. I am entirely unable to tell you why I did not give up. It was not a conscious decision. I just did not want to give up. I wanted to continue with this wonderful method. I thought the results were much too wonderful to let it go. I thought one should try to make the method safe and I started thinking how it could be made safe. Certainly, I felt, the lower portion of the gastroscope from about 3 cms. above the cardia to the lowest point of the stomach had to become flexible. But how?

I want to mention that at this time I got a very wonderful visit. Marie Ortmayer and Dr. Laing came from Vienna to see me and Marie Ortmayer looked with me through the gastroscope into several stomachs. She reported about her impressions to Walter Palmer in Chicago and he came the next year and saw the inside of the stomach also through my gastroscope. That was very decisive in the future. I will not describe my experiences with Sauerbruch, famous thoracic surgeon in Munich, who became very hostile towards the method of gastroscopy. That was an obstacle which had to be overcome.

Now I thought that the lower portion of the gastroscope should become flexible, but how? I felt this I could not do alone. I had constructed and designed a rigid gastroscope that was all right; but a flexible gastroscope—that was beyond my ability. I felt that only one man could really help me with it, namely the very ingenious cystoscope-maker Georg Wolf, in Berlin who had constructed Sussman's gastroscope in 1912. For years I corresponded with Wolf and I had great difficulties to convince him to help me with these constructions. We knew about the Goerz device to look through flexible tubes by means of series of thick convex lenses which was discovered during the war time. But how could it be used for a gastroscope, for the anatomic conditions of the esophagus and the stomach? There I had to advise Georg Wilf, and finally he decided, in 1927, to build such a tube. Here I show you the very first flexible gastroscope ever built. You see, it is a simple stomach tube filled with thick lenses and a primitive optical system. You will realize there were the chances of perhaps one in ten that we could see something with this instrument inside of the stomach. I had a sword-swallower in Munich and in him I introduced this instrument. Georg Wolf and I looked through this instrument and really and incredibly we saw a red illuminated disk at the end of the gastroscope and we had the evidence that one really could look through a flexible tube inside of the stomach. Now Georg Wolf became enthusiastic. In the next few years he built a total of 5 models. I rejected 4 of them and finally accepted the 5th in 1932. It took me quite some time to convince Georg Wolf that the upper portion of the instrument had to be stiff and rigid so that we could direct the instrument inside of the stomach and get oriented inside of the stomach.

I will just mention a disagreeable episode which, however, lasted one full year, namely my work with the gastrophotor. My poor wife developed all these small pictures and it took an enormous amount of work and patience until we came to the decision that the gastrophotor simply was not good. We got at that time the same lunar landscapes, which were shown in a recent Life Magazine as true pictures of the inside of the stomach.

The fifth model of the gastroscope was extremely satisfactory. One could come to the lowest portion of the stomach and could practically always see the pylorus. It was a marvellous progress.

I demonstrated the instrument on July 6th, 1932 before the Munich Medical Society. Then I went to Vienna to the Meeting of the Gastroenterological Association. I talked there about this instrument. And while I was sitting in the meeting room Professor Jagic asked me to talk with him. Well, I went out and talked with him and he told me that he wanted me to demonstrate the instrument. He wanted to see it in use. I said: no, I cannot do this; my wife is not with me I and cannot do any gastroscopy without my wife who has

to hold the head. Thereupon Professor Jagic said: well you cannot sell your wife with every gastroscope. I had to admit that this was true and I had no choice. I had to demonstrate the method and it went very well. We could see the inside of the stomach and gastroscopy was now accepted. Then we went together to Berlin and demonstrated before Sauerbruch the instrument and Sauerbruch's hostility was given up and he admitted that the method now was accomplished. I will not talk about the experiences in Paris. They were very sad, I had mentioned them in my book and I do not care even to think of them.

At that time it was clear that Hitler would come to power. I foresaw a very terrible development. At that time I wrote to Marie Ortmayer whether they could not use me and the new instrument in the United States. And indeed Marie Ortmayer made me come over. How she did it I still do not know to date. But she accomplished it and you know all the further developments. You remember the enthusiastic reception of gastroscopy in this country, the extremely critical attitude of everybody, of the roentgenologists as well as of the gastroenterologists. You remember the spreading of gastroscopy and you can imagine how much I started to love the country in which I was treated so fairly. And you remember further the development until the foundation of the Gastroscopic Society, then the Gastroscopic Club in 1941 and the first meeeting in Atlantic City in 1942.

With this I could end. But I think I should say a few words if Dr. Pollard will permit me to do so about the present status of gastroscopy.

Five years ago I believed we had achieved our goal, our society could be dissolved.—Today I am not so sure. I hate to appear pessimistic in a moment where I would prefer to pronounce triumphantly that our goal has been reached, that gastroscopy has become as indispensable to the gastroenterologist as is cystoscopy to the urologist. But it is not so. Gastroscopy right now faces a crisis. And I feel that here I have a certain duty, so to say as "elder statesman", to state clearly that we are threatened by two dangers. Again I must ask the forgiveness, especially of the ladies, that I bring some scientific seriousness into an after-dinner talk.

Two dangers:

(1) Gastroscopy, in my opinion, should be used in each case in which stomach disease in suspected and in which x-ray examination is negative or ambiguous . . . This can be done only if gastroscopy is considered by the averaged patient and by the average referring doctor as an easy office procedure, relatively without danger. The psychological attitude is all important. You know that the Taylor instrument—though very good in its conception—has almost discredited gastroscopy in England because of the many hypo-pharyngeal lesions caued by its thickness.

We have had wonderful progress. We cannot be too grateful that now it is possible to take biopsies with the gastroscope in difficult cases. However, if we say that a gastroscopy is not complete without biopsy, then I fear, that we dig ourselves the grave of routine gastroscopy. An operating instrument *must* be thicker than a simple observation instrument. We should try to make our *standard* instrument thinner but not thicker, in order to reduce danger and discomfort. A physician who works only with serious and difficult hospital cases is naturally in a position quite different from the gastroenterologist, who sees many cases of unexplained nausea or anorexia or belching or pain in his office and who wishes to clarify them. If we insist on the *routine* use of thick instruments we cannot use gastroscopy in such simple cases.

(2) The second danger is not less important. If we believe that gastritis does not cause symptoms,—in contrast to cystitis, to rhinitis, to conjunctivitis, to pharyngitis, to laryngitis, to bronchitis, to proctitis,—then there is little reason to do routine gastroscopies. True, 20½ of all gastric ulcers are found only at gastroscopy; true, quite a few tumors, even carcinomas are missed at x-ray; —yet—the chief reason why we must advise gastroscopy routinely, is, to come to a differential diagnosis between neurosis and organic chronic inflammation.

Now: Amica est gastroscopia, sed magis amica est veritas. Gastroscopy is my friend, but my greater friend is the truth. If it were true that gastritis is of no importance I would give up examining my patients routinely with the gastroscope at once. But I believe that the evidence speaks so overwhelmingly in favor of gastritis causing symptoms that I am *not* afraid of the future development. Naturally, some inactive, adynamic cases of gastritis are symptomless, as are so many cases of cancer, gallstone and ulcer. However,—to speak only of atrophic gastritis, with apologies again to the ladies—atrophic gastritis means inflammation of the stomach with destruction of the stomach glands—I find at least six reasons of which each single one would convince me that atrophic gastritis can cause symptoms.

(1) One third of all gastic cancer cases have a long history of gastric symptoms. These patients did not have ulcer. What can possibly have caused the symptoms of long duration but atrophic gastritis?

(2) Workers of the Mayo Clinic have shown that patients who develop gastric carcinoma have often for a long time previously anacidity, due to atrophic gastritis. But why was it possible to do a gastric analysis in so many people: obviously only because they had *symptoms*.

(3) You may remember Seymour Gray's and my study of 100 alcoholics. (Gray is with us tonight.) 55 had a normal stomach, 45 had superficial or atrophic gastritis. 28 had stomach symptoms. Of these 24 belonged to the gastritis group. This is, in my opinion, a neat mathematical proof.

(4) The distention test. I did this with Milton Machado Mourao from Brazil. Blow air into a normal stomach. It will tolerate a certain amount, and then the patient will belch it up, but without pain. Do the same thing to a patient with superficial or atrophic gastritis: the patient will tolerate less air and usually will complain of pain—the same pain, for which he had consulted the doctor. Try it out, gentlemen, it's easy.

(5) Once or twice a year a young woman or man, between 20 and 30 will consult me for pressure in the epigastrium, loss of appetite, belching, tiredness. Nothing is found, except at gastroscopy where you see a complete atrophy. In the older age group you may say: coincidence; but at the age of 25? I see only few patients of this age in my office, but many of them have atrophic gastritis.

(6) The clinical observation of the following single case would convince me against each statistical analysis. A 32 year old truck driver suffers from epigastric pressure and general malaise and tiredness. Objectively only severe atrophic gastritis. Treatment with Vitamin A: no result. Patient is desperate. Liver injections. After one week condition changed, no more distress, patient is happy. Assumption that this was due to suggestion.

APR 14 '77

Done Nov 23



But then a doctor asks me about this patient, because he treats his sister,—he treats her for combined cord degeneration, and she has responded beautifully to liver treatment also. And the mother has a histamine-proved anacidity. This case is entirely sufficient to prove that atrophic gastritis may cause symptoms and that we must continue to do routine gastroscopies.

It is your job, gentlemen, to present this truth again and again and not to be afraid of statistical analysis. Statistics . . .

Now, you naturally will say that this emphasis on clinical observations and this distrust of statistics is typically German. And I will not deny this. I live now for 20 years in the United States and consider myself a very, very good American citizen. But nobody changes completely.

And this reminds me of the story of the Scotsman who at the age of 5 came to the United States. At the age of 45 he decided to go to Scotland to find out whether the Scotsmen were really such as they were described in the many stories. He came back to the United States, and his friends asked him how was it, and he said: oh, terrible. Things are much worse than I thought. Listen what happened to me. I went from my hotel 5 blocks, to a shop, and I entered and bought myself a cigar; then I said to the salesman: Please give me a light. And he said: I have no light. I said: how come? If I buy a cigar in the United States I get a light with the cigar; and he said yes in the United States, but here you are in Scotland and I have no light. But I could sell to you—*tell to you* this box of matches for 3 pennies. And what do you think, gentlemen, I had to go back to my hotel, 5 blocks, only to get a light.

Allright—I will admit, the method is of no importance, the truth alone matters. And the truth, gentlemen, is on our side. Let's fight for it. Fighting rejuvenates. With such a fight the existence of our society is justified, and it will flourish.

Dr. Schindler here concludes the featured talk of the banquet amidst great applause. His remarks on the occasion of the awarding of the first Schindler prize to Dr. Edward B. Benedict follows:

Mr. President, members and guests:

Let me say first that only about 2 weeks ago did I learn about the creation of this award—isn't that true, Dr. Howard?—(Dr. Howard nods). I certainly consider this as an extraordinary honor for which I am intensely grateful. I have not yet found the time to quite recover from the surprise and shock.

Now, I have a duty tonight.

When I yesterday heard Dr. Aaron give his wonderful long talk in honor of Dr. Andresen I became quite discouraged. I am not able to deliver such a speech. First I had no time and occasion to collect the biographical data. But then I think it is quite unnecessary.

Who could possibly be the first bearer of our new award but the man who was the first to use the flexible gastroscope, independently, in this country;

the man who has published so many wonderful and extremely critical articles on gastroscopic subjects;

the man who was the first to demonstrate and to emphasize the frequency of gross hemorrhage from gastritis;

the man who published an excellent book on the endoscopic methods;

the man who is the originator of the operating gastroscope, a definite important progress;

who could be the first receiver of the award but our friend,—my friend,—Dr. Edward B. Benedict.